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ABSTRACT

This book presents a tractable computational model that can cope with complex morphological operations, especially in Semitic languages, and less complex morphological systems present in Western languages. It outlines a new generalized regular rewrite rule system that uses multiple finite-state automata to cater to root-and-pattern morphology, infixation, circumfixation, and other complex operations such as the broken plural derivation problem found in Arabic and Ethiopic. Chapter 1, "Introduction," introduces linguistic, computational, and Semitic preliminaries. Chapter 2, "Survey of Semitic Nonlinear Morphology," introduces Semitic root-and-pattern morphology, emphasizing Arabic. Chapter 3, "Survey of Finite-State Morphology," discusses finite-state morphology and two-level formalisms. Chapter 4, "Survey of Semitic Computational Morphology," describes previous proposals for handling Semitic morphology computationally. Chapter 5, "A Multitier Nonlinear Model," outlines a new computational morphology model made of three compounds. Chapter 6, "Modeling Semitic Nonlinear Morphology," demonstrates how nonlinear morphological problems can be handled under one new model, noting practical issues that arise when developing Semantic morphology. Chapter 7, "Compilation into Multitape Automata," shows how lexica and rules are compiled into multitape finite-state automata or transducers. Chapter 8 offers "Conclusion." (Contains 103 references.) (SM)



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